

AMENDMENTS TO THE CLAIMS

Please amend claims 14, 22-31, 37, 40, 43, 46, 49, 52, 55, 58, 61, 64, 68-77, 81, 84, 87-90 and add new claims 91-98, such that the status of the claims is as follows:

1-13.(Canceled)

14. (Currently Amended) A method for transmitting and receiving at least two independent source signals, comprising the steps of:

obtaining said at least two independent source signals, in the form of independent series of coded bits;

assigning a determined frequency band to an OFDM signal to be transmitted, several approximately orthogonal carrier frequencies being defined in said frequency band;

breaking down said frequency band into at least two frequency subbands, each of said subbands comprising a set of said approximately orthogonal carrier frequencies;

assigning each of said frequency subbands to one of said independent source signals; selectively modulating the carrier frequencies of each frequency subband with the coded bits of the corresponding source signal;

grouping said modulated frequency subbands to form a modulated OFDM signal;

tuning and transmitting the modulated OFDM signal as a whole;

receiving the modulated OFDM signal in a receiver;

extracting from the modulated OFDM signal at least one, ~~but not all~~ of the frequency subbands, by filtering; and

performing demodulation processing solely on the frequency carriers contained in the extracted subbands of the modulated OFDM signal.

15. (Previously Presented) Method according to claim 14, characterized in that said subbands are adjacent.

16. (Previously Presented) Method according to claim 14, characterized in that said subband grouping step is preceded by an independent coding step and frequency and time interlacing of each of said source signals, so as to obtain a set of coded signals designed to modulate each of said carrier frequencies of the subband assigned to said source signal.

17. (Previously Presented) Method according to claim 14, wherein the modulated OFDM signal is a single signal tuned as a whole by a sole modulator modulating simultaneously the substantially orthogonal frequency carriers, the orthogonal frequency carriers being orthogonal in each subband and from subband to subband.

18. (Previously Presented) Method according to claim 14, characterized in that said subbands have identical bandwidths.

19. (Previously Presented) Method according to claim 14, characterized in that said source signals are assigned to said subbands in a manner that varies with time, in order to maximize the frequency diversity.

20. (Previously Presented) Method according to claim 19, characterized in that said assignment is modified on each transmission of a frame of said signal.

21. (Previously Presented) Method according to claim 14, characterized in that at least a first of said source signals corresponds to basic information for a program and at least a second of said source signals corresponds to information complementary to said basic information, in order to define at least two receiver quality levels:

- a first quality level applicable to receivers capable of processing only the subband corresponding to said first source signals; and
- a second quality level corresponding to receivers capable of processing subbands corresponding to the first and second source signals.

22. (Currently Amended) Method according to claim 14, characterized in that performing demodulation processing further comprises:

selecting a given program corresponding to at least one of the frequency subbands using a selection means; and
acting on the carrier frequencies contained in the at least one selected ~~subband(s)~~ subband using a mathematical transformation means.

23. (Currently Amended) Method according to claim 22, characterized in that said selection means includes analog transposition means including a first RF transposition oscillator and a second IF transposition oscillator, and means of controlling an oscillation frequency of said first RF transposition oscillator ~~and/or said second IF transposition oscillator~~ as a function of the at least one selected ~~subbands~~ subband, so that the at least one selected ~~subbands~~ subband is centered on a predetermined frequency.

24. (Currently Amended) Method according to claim 22, characterized in that said selection means comprises:

first analog transposition means and second digital transposition means that are variable as a function of the at least one selected ~~subband(s)~~ subband; and
a subsampling means.

25. (Currently Amended) Method according to claim 22, characterized in that said mathematical transformation means acts on a number of carrier frequencies slightly exceeding the number of carrier frequencies contained in the at least one selected subband ~~extracted subband(s)~~, so as to compensate for imperfection due to extraction filtering of ~~said subbands~~ the at least one selected subband.

26. (Currently Amended) A method for transmitting and receiving an OFDM signal, the method comprising:

obtaining at least two independent source signals, each source signal being in the form of an independent series of coded bits;

assigning a determined frequency band on which the OFDM signal will be transmitted;

defining approximately orthogonal carrier frequencies in the determined frequency band;

breaking the determined frequency band down into at least two frequency subbands, each of said subbands comprising a set of said approximately orthogonal carrier frequencies;

assigning each independant source signal to one of said frequency subbands;

transmitting a modulated OFDM signal by selectively modulating the carrier frequencies of each frequency subband with the coded bits of the correspondingly assigned source signal and grouping said modulated OFDM signal being tuned and transmitted as a whole, so that said frequency carriers are orthogonal in each of said subbands and from subband to subband;

receiving the modulated OFDM signal;

extracting at least one ~~but less than all~~ of the frequency subbands from the received OFDM signal by filtering; and

performing demodulation processing solely on the frequency carriers contained in the at least one extracted ~~subbands~~ subband of the received modulated OFDM signal.

27. (Currently Amended) A receiver of at least one independent source signal, said independent source signals being transmitted according to the steps of:

obtaining said at least two independent source signals, in the form of independent series of coded bits;

assigning a determined frequency band to an OFDM signal to be transmitted, several approximately orthogonal carrier frequencies being defined in said frequency band;

breaking down said frequency band into at least two frequency subbands, each of said subbands comprising a set of said approximately orthogonal carrier frequencies;

assigning each of said frequency subbands to one of said independent source signals; selectively modulating the carrier frequencies of each frequency subband with the coded bits of the corresponding source signal;

grouping said modulated frequency subbands to form a modulated OFDM signal; tuning and transmitting the modulated OFDM signal as a whole;

said receiver comprising:

- a signal receiver of the modulated OFDM signal;
- an extractor for extracting ~~[[of]]~~ at least one, ~~but not all the~~ frequency ~~subbands~~ subband, by filtering from the modulated OFDM signal;
- and a demodulation processor acting solely on the frequency carriers contained in the at least one extracted ~~subbands~~ subband of the modulated OFDM signal.

28. (Currently Amended) Receiver according to claim 27, characterized in that said extractor includes a first RF transposition oscillator and a second IF transposition oscillator, and a controller of ~~the~~ an oscillation frequency of said first ~~and/or said second~~ oscillator as a function of the at least one selected subbands extracted subband, so that ~~they are~~ the at least one extracted subband is centered on a predetermined frequency.

29. (Currently Amended) Receiver according to claim 27, characterized in that said extractor comprises a first analog transposer and a second digital transposer that are variable as a function of the at least one selected subband(s) extracted subband, and a subsampler.

30. (Currently Amended) Receiver according to claim 27, characterized in that said demodulation processor comprises a mathematical transformation acting on a number of carrier frequencies slightly exceeding the number of carrier frequencies contained in the at least one extracted subband(s) subband, so as to compensate for the imperfection due to extraction filtering of ~~said subbands~~ the at least one extracted subband.

31. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that a receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being

orthogonal in each subband and from subband to subband, so that a first type of receiver can receive the whole ~~modulated~~ OFDM signal and process one source signal, without processing the whole OFDM signal.

32. (Previously Presented) Signal according to claim 31, characterized in that said subbands are adjacent.

33. (Previously Presented) Signal according to claim 31, characterized in that at least two subbands have identical bandwidths.

34. (Previously Presented) Signal according to claim 31, characterized in that said source signals are assigned to said subbands in a manner that varies with time, in order to maximize the frequency diversity.

35. (Previously Presented) Signal according to claim 34, characterized in that said assignment is modified on each transmission of a frame of said signal.

36. (Previously Presented) Signal according to claim 31, characterized in that at least a first of said source signals corresponds to basic information for a program and at least a second of said source signals corresponds to information complementary to said basic information, in order to define at least two receiver quality levels:

- a first quality level applicable to receivers capable of processing only the subband corresponding to said first source signals; and
- a second quality level corresponding to receivers capable of processing subbands corresponding to the first and second source signals.

37. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that [[the]] processing to be done in [[a]] the receiver of said ~~modulated~~ OFDM signal, compared to processing taking into account all the frequency carriers of said modulated OFDM signal, is reduced.

38. (Previously Presented) Signal according to claim 37, characterized in that said subbands are adjacent.

39. (Previously Presented) Signal according to claim 37, characterized in that at least two subbands have identical bandwidths.

40. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers,

said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that it is possible to transmit several source signals without it being necessary to widen [[a]] the frequency band allocated to said ~~modulated~~ OFDM signal.

41. (Previously Presented) Signal according to claim 40, characterized in that said subbands are adjacent.


42. (Previously Presented) Signal according to claim 40, characterized in that at least two subbands have identical bandwidths.

43. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that at least one receiver of at least a first type of receivers can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that said ~~modulated~~ OFDM signal can be received and processed by at least two types of receivers, corresponding to at least two reception qualities:

- a first type of receivers processing a first set of at least one subband; and
- a second type of receivers processing said first set of at least one subband and at least one second set of at least one subband not belonging to said first set.

44. (Previously Presented) Signal according to claim 43, characterized in that said subbands are adjacent.

45. (Previously Presented) Signal according to claim 43, characterized in that at least two subbands have identical bandwidths.




46. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that at least one subband can be coded with a coding distinct of coding applied to other subbands.

47. (Previously Presented) Signal according to claim 46, characterized in that said subbands are adjacent.

48. (Previously Presented) Signal according to claim 46, characterized in that at least two subbands have identical bandwidths.

49. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM

signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that a set of at least one subband can be specifically interlaced in time ~~and/or~~ or in frequency.



50. (Previously Presented) Signal according to claim 49, characterized in that said subbands are adjacent.

51. (Previously Presented) Signal according to claim 49, characterized in that at least two subbands have identical bandwidths.

52. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that a receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being

orthogonal in each subband and from subband to subband, so that [[a]] the receiver can select a given program, among at least two programs carried by said OFDM ~~modulated~~ signal.

53. (Previously Presented) Signal according to claim 52, characterized in that said subbands are adjacent.

54. (Previously Presented) Signal according to claim 52, characterized in that at least two subbands have identical bandwidths.

3 55. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that at least one receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that [[a]] the receiver processes said OFDM ~~modulated~~ signal by applying a DFT only on said extracted subbands.

56. (Previously Presented) Signal according to claim 55, characterized in that said subbands are adjacent.

57. (Previously Presented) Signal according to claim 55, characterized in that at least two subbands have identical bandwidths.

58. (Currently Amended) An OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that at least one receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the at least one extracted subband, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that ~~[[a]]~~ the receiver processes said OFDM ~~modulated~~ signal by controlling an RF transposition oscillator ~~and/or or~~ an IF transposition oscillator as a function of the at least one extracted subband(s) subband, so that ~~[[they]]~~ the at least one extracted subband will be centered at a predetermined frequency.

59. (Previously Presented) Signal according to claim 58, characterized in that said subbands are adjacent.


60. (Previously Presented) Signal according to claim 58, characterized in that at least two subbands have identical bandwidths.

61. (Currently Amended) An transmission system wherein an OFDM signal ~~to be~~ is transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that a receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that [[a]] the receiver processes said OFDM ~~modulated~~ signal by varying analog/digital transposition means and digital transposition means as a function of the at least one extracted ~~subband(s)~~ subband.

62. (Previously Presented) Signal according to claim 61, characterized in that said subbands are adjacent.

63. (Previously Presented) Signal according to claim 61, characterized in that at least two subbands have identical bandwidths.

64. (Currently Amended) A receiver of an OFDM signal comprising:
means for receiving a whole OFDM signal; and
means for processing at least one source signal without processing the whole OFDM
signal, the OFDM signal transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously



transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that said receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, ~~said receiver comprising means for receiving the whole modulated OFDM signal and means for processing at least one source signal, without processing the whole OFDM signal.~~

65. (Previously Presented) Receiver according to claim 64, characterized in that said source signals are assigned to said subbands in a manner that varies with time, in order to maximize the frequency diversity, and in that said means for processing comprises means to identify at least one subband corresponding to said at least one source signal.

66. (Previously Presented) A receiver according to claim 64, characterized in that at least a first of said source signals corresponds to basic information for a program and at least a second of said source signals corresponds to information complementary to said basic information, in order to define at least two receiver quality levels:

- a first quality level applicable to receivers capable of processing only the subband corresponding to said first source signals; and


– a second quality level corresponding to receivers capable of processing subbands corresponding to the first and second source signals;
said receiver being of said first quality level and comprising means for processing only the subband corresponding to said first source signals.

67. (Previously Presented) A receiver according to claim 64, characterized in that at least a first of said source signals corresponds to basic information for a program and at least a second of said source signals corresponds to information complementary to said basic information, in order to define at least two receiver quality levels:



– a first quality level applicable to receivers capable of processing only the subband corresponding to said first source signals; and
– a second quality level corresponding to receivers capable of processing subbands corresponding to the first and second source signals;
said receiver being of said second quality level and comprising means for processing subbands corresponding to the first and second source signals.

68. (Currently Amended) A receiver of an OFDM signal comprising:
means for receiving a whole OFDM signal; and
means for processing at least one source signal so that the processing to be done in
the at least one receiver of the OFDM signal is reduced, the OFDM signal to
be transmitted to at least one receiver, said OFDM signal being composed of
a plurality of substantially orthogonal frequency carriers, said carriers being
modulated by distinct data and simultaneously transmitted to form said
~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal
including at least two source signals,
wherein each of said source signals is assigned to at least a distinct one of at least
two frequency subbands, each of said at least two frequency subbands



comprising a set of said substantially orthogonal frequency carriers, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, ~~and wherein said receiver comprises means for receiving the whole modulated OFDM signal and means for processing at least one source signal, so that the processing to be done in a receiver of said modulated OFDM signal is reduced.~~

69. (Currently Amended) A receiver of an OFDM signal comprising means for processing only a subband corresponding to a first source signal, the OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that at least one receiver of at least a first type of receivers can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that said ~~modulated~~ OFDM signal can be received and processed by at least two types of receivers, corresponding to at least two reception qualities:

- a first type of receivers processing a first set of at least one subband; and
- a second type of receivers processing said first set of at least one subband and at least one second set of at least one subband not belonging to said first

set[[]], said receiver being of said first quality level ~~and comprising means for processing only the subband corresponding to said first source signals.~~

70. (Currently Amended) A receiver of an OFDM signal comprising means for processing subbands corresponding to first and second source signals, the OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that at least one receiver of at least a first type of receivers the receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that said ~~modulated~~ OFDM signal can be received and processed by at least two types of receivers, corresponding to at least two reception qualities:

- a first type of receivers processing a first set of at least one subband; and
- a second type of receivers processing said first set of at least one subband and at least one second set of at least one subband not belonging to said first set[[]], said receiver being of said second quality level ~~and comprising means for processing subbands corresponding to the first and second source signals.~~

71. (Currently Amended) A receiver of an OFDM signal comprising:

means for receiving a whole OFDM signal; and

means for decoding at least one subband coded with a coding; the OFDM signal to

be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals,

wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband,


so that at least one subband can be coded with a coding distinct from coding applied to other subbands, ~~said receiver comprising means for receiving the whole modulated OFDM signal and means for decoding at least one subband coded with one of said codings~~

72. (Currently Amended) A receiver of an OFDM signal comprising:

means for receiving a whole OFDM signal; and

means for specifically de-interlacing in time or in frequency at least one subband, the


OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted



to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that a set of at least one subband can be specifically interlaced in time [[and/]]or in frequency; ~~said receiver comprising means for receiving the whole modulated OFDM signal and means for specifically de-interlacing in time and/or in frequency said at least one subband.~~

73. (Currently Amended) A receiver of an OFDM signal comprising:
means for selecting a given program, among at least two programs carried by the OFDM signal; and
means for processing at least one subband corresponding to a given program, the OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals,
wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that [[a]] the receiver can extract at least one of said subbands, but not all

subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband[[,]]
~~said receiver comprising means for selecting a given program, among at least two programs carried by said OFDM modulated signal, and means for processing at least one of said subbands corresponding to said given program.~~

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74. (Currently Amended) A receiver of an OFDM signal comprising:
means for receiving said OFDM signal; and
means for applying a DFT only on an extracted subband of the OFDM signal, the
OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals,
wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that at least one receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially

orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband[[,]].

~~said receiver comprising means for receiving said OFDM modulated signal and means for applying a DFT only on said extracted subbands of said OFDM modulated signal.~~

75. (Currently Amended) A receiver of an OFDM signal comprising means for controlling an RF transposition oscillator or an IF transposition oscillator as a function of at least one extracted subband so that the RF transposition or the IF transposition will be centered at a predetermined frequency, the OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that at least one receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband[[,]].

~~said receiver processing said OFDM modulated signal by controlling an RF transposition oscillator and/or an IF transposition oscillator as a function of the extracted subband(s) so that they will be centered at a predetermined frequency.~~

76. (Currently Amended) A receiver ~~of~~ for processing an OFDM signal comprising:
analog/digital transposition means;
digital transposition means; and
means for varying the analog/digital transposition means and the digital transposition
means as a function of at least one extracted subband, the OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein each of said source signals is assigned to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that a receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands, said OFDM signal being a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband[[,]].

~~said receiver processing said OFDM modulated signal by varying analog/digital transposition means and digital transposition means as a function of the extracted subband(s).~~

77. (Currently Amended) An emitter of an OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, said emitter comprising:

means for assigning each of said source signals to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that

a receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands; and

means for tuning said OFDM signal as a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that a receiver can receive the whole ~~modulated~~ OFDM signal and process one source signal, without processing the whole OFDM signal.




78. (Previously Presented) An emitter according to claim 77, characterized in that said means for assigning assigns said source signals to said subbands in a manner that varies with time, in order to maximize the frequency diversity.

79. (Previously Presented) Emitter according to claim 78, characterized in that said assignment is modified on each transmission of a frame of said signal.

80. (Previously Presented) Emitter according to claim 77, characterized in that at least a first of said source signals corresponds to basic information for a program and at least a second of said source signals corresponds to information complementary to said basic information, in order to define at least two receiver quality levels:

- a first quality level applicable to receivers capable of processing only the subband corresponding to said first source signals; and
- a second quality level corresponding to receivers capable of processing subbands corresponding to the first and second source signals.

81. (Currently Amended) An emitter of an OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein said emitter comprises:



means for assigning each of said source signals to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers; and
means for tuning said OFDM signal as a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband,
so that the processing to be done in a receiver of said ~~modulated~~ OFDM signal is reduced.

82. (Previously Presented) Emitter according to claim 81, characterized in that said subbands are adjacent.

83. (Previously Presented) Emitter according to claim 82, characterized in that at least two subbands have identical bandwidths.

84. (Currently Amended) An emitter of an OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals,

wherein said emitter comprises:

means for assigning each of said source signals to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers; and

means for tuning said OFDM signal as a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband,

so that it is possible to transmit several source signals without it being necessary to widen [[a]] the frequency band allocated to said ~~modulated~~ OFDM signal.

85. (Previously Presented) An emitter of an OFDM signal according to claim 84, characterized in that said subbands are adjacent.

86. (Previously Presented) An emitter of an OFDM signal according to claim 85, characterized in that at least two subbands have identical bandwidths.

87. (Currently Amended) An emitter of an OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals,

wherein said emitter comprises:

means for assigning each of said source signals to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that at least one receiver of at least a first type of receivers can extract at least one

of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands; and

means for tuning said OFDM signal as a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband,

so that said ~~modulated~~ OFDM signal can be received and processed by at least two types of receivers, corresponding to at least two reception qualities:

- a first type of receivers processing a first set of at least one subband;
- a second type of receivers processing said first set of at least one subband and at least one second set of at least one subband not belonging to said first set.

88. (Currently Amended) An emitter of an OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals, wherein said emitter comprises:

means for assigning each of said source signals to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers; and

means for tuning said OFDM signal as a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband,

said emitter further comprising at least two distinct coding means, so that at least one subband can be coded with a coding distinct of coding applied to other subbands.

89. (Currently Amended) An emitter of an OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals,

wherein said emitter comprises:

means for assigning each of said source signals to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers; and

means for tuning said OFDM signal as a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband,


said emitter further comprising means for specifically interlacing in time ~~and/or~~ or in frequency a set of at least one subband.

90. (Currently Amended) An emitter of an OFDM signal to be transmitted to at least one receiver, said OFDM signal being composed of a plurality of substantially orthogonal frequency carriers, said carriers being modulated by distinct data and simultaneously transmitted to form said ~~modulated~~ OFDM signal on a determined frequency band, said OFDM signal including at least two source signals,

wherein said emitter comprises:

means for assigning each of said source signals to at least a distinct one of at least two frequency subbands, each of said at least two frequency subbands comprising a set of said substantially orthogonal frequency carriers, so that a receiver can extract at least one of said subbands, but not all subbands from the transmitted OFDM signal by filtering, and can carry out demodulation processing solely on the frequency carriers contained in the extracted subbands; and

means for tuning said OFDM signal as a single signal tuned as a whole by a sole modulator modulating simultaneously said plurality of substantially orthogonal frequency carriers, said plurality of orthogonal frequency carriers being orthogonal in each subband and from subband to subband, so that the receiver can select a given program, among at least two programs carried by said OFDM ~~modulated~~ signal.



91. (New) Method according to claim 22, characterized in that said selection means includes analog transposition means including a first RF transposition oscillator and a second IF transposition oscillator, and means of controlling an oscillation frequency of said second IF transposition oscillator as a function of the at least one subband, so that the at least one subband is centered on a predetermined frequency.

92. (New) Receiver according to claim 27, characterized in that said extractor includes a first RF transposition oscillator and a second IF transposition oscillator, and a controller of the oscillation frequency of said second oscillator as a function of the at least one selected subband, so that at least one selected subband is centered on a predetermined frequency.

93. (New) An OFDM signal to be used in a method according to claim 14.

94. (New) An OFDM signal to be received in a receiver according to claim 27.

95. (New) A method for transmitting and receiving at least two independent source signals, comprising the steps of:

obtaining the at least two independent source signals in the form of independent series of coded bits;

assignment of a determined frequency band to an OFDM signal to be transmitted, several approximately orthogonal carrier frequencies being defined in the frequency band;

breakdown of the frequency band into at least two frequency subbands, each of the subbands comprising a set of the approximately orthogonal carrier frequencies;

assignment of each of the frequency subbands to one of the independent source signals;

selectively modulating the carrier frequencies of each frequency subband with the coded bits of the corresponding source signal;

grouping the modulated frequency subbands to form a modulated OFDM signal;

tuning and transmitting the modulated OFDM signal as a whole;

receiving the modulated OFDM signal in a first type of receiver comprising the steps of:

extracting from the modulated OFDM signal at least one, but not all, the frequency subbands by filtering; and

performing demodulation processing solely on all the frequency carriers of the modulated OFDM signal; and

receiving the modulated OFDM signal in a second type of receiver comprising the step of:

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performing demodulation processing solely on all the frequency carriers of the modulated OFDM signal.

96. (New) An OFDM signal produced by a signal generator comprising:

a pre-determined frequency band defining a plurality of approximately orthogonal carrier frequencies, the plurality of approximately orthogonal carrier frequencies divided into at least two frequency subbands, each frequency subband representing a set of the plurality of approximately orthogonal carrier frequencies;

independent source signals representing independent series of coded bits, each independent source signal being assigned to one of the at least two frequency subbands,


wherein each set of the plurality of approximately orthogonal carrier frequencies of each of the at least two frequency subbands is selectively modulated with coded bits of the assigned independent source signal and grouped to form the OFDM signal.

97. (New) A method for transmitting and receiving at least two independent source signals, comprising the steps of:

obtaining said at least two independent source signals, in the form of independent series of coded bits;

assigning a determined frequency band to an OFDM signal to be transmitted, several approximately orthogonal carrier frequencies being defined in said frequency band;

breaking down said frequency band into at least two frequency subbands, each of said subbands comprising a set of said approximately orthogonal carrier frequencies;



assigning each of said frequency subbands to one of said independent source signals;
selectively modulating the carrier frequencies of each frequency subband with coded
bits of the corresponding source signal;
grouping said modulated frequency subbands to form a modulated OFDM signal;
tuning and transmitting the OFDM signal as a whole;
receiving the OFDM signal by at least two types of receivers, in a first type of
receiver for extracting at least one of said subbands, but not all subbands
from the transmitted OFDM signal, and a second type of receiver for
performing demodulation on all carrier frequencies of all frequency bands
assigned to the OFDM signal,
extracting from the OFDM signal at least one, but not all the frequency subbands, by
filtering with the first type of receiver; and
performing demodulation processing solely on the frequency carriers contained in
the extracted subbands of the OFDM signal with the first type of receiver and
on all carrier frequencies of all frequency bands assigned to the OFDM signal
by the second type of receiver.

98. (New) A method of forming a modulated OFDM signal from two or more independent source signals, the method comprising:

assigning a frequency band to an OFDM signal, the frequency band containing two or more frequency subbands, each frequency subband representing several approximately orthogonal carrier frequencies;
assigning each of the frequency subbands to an independent source signal such that each frequency subband is assigned a corresponding source signal;
selectively modulating the carrier frequencies of each frequency subband with coded bits from the corresponding source signal; and
grouping the modulated frequency subbands to form the modulated OFDM signal.
